

Appln. No. 10/656949
Amdt. dated: March 8 2005
Reply to Office Action dated: Dec. 15, 2004

Remarks/Arguments

These remarks are in response to the Office Action dated December 15, 2004. This reply is timely filed. At the time of the Office Action, claims 1-23 were pending in the application. Claims 12, 13, 15, 16, 18-20 and 23 were rejected under 35 U.S.C. §102(e). Claims 1, 3-5, 7-8 and 11 were rejected under 35 U.S.C. §103(a). Claims 2, 9-10, 14 and 21-22 were objected to as being dependent upon a rejected base claim, but are indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The rejections are set out in more detail below.

I. Brief Review of Applicants' Invention

Prior to addressing the Examiner's rejections on the art, a brief review of applicants' invention is appropriate. The invention relates to a method and a system for controlling a phase delay of an RF transmission line by coupling a fluidic dielectric to the RF transmission line. For example, the phase delay of the RF transmission line for a particular RF frequency can be varied, or the phase delay can be maintained constant as the operational frequency of the RF transmission line is varied.

The system includes a fluid channel having a serpentine configuration. The fluid channel is configured such that a plurality of fluid channel segments traverse the transmission line. The dimensions of each of the segments can be selected to provide a particular phase adjustment at a particular operating frequency when filled with fluidic dielectric. Thus, the phase delay of the RF transmission line can be selectively controlled by adding and removing the fluidic dielectric from the fluid channel segments. In this manner, very precise control over the phase characteristics of the RF transmission line can be achieved. Specifically, the number of channel segments that are filled with fluidic dielectric can be selectively controlled to achieve the amount of phase adjustment that is required.

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II. Claim Rejections Under 35 U.S.C. §102(e)

Claims 12, 13, 15, 16, 18-20 and 23 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,515,235 to Moller ("Moller"). Amended claims 12 and 23 each recite, inter alia, adding a fluidic dielectric into a fluid channel having a serpentine configuration. The fluid channel comprises a plurality of fluid channel segments that traverse an RF transmission line and that are coupled to the RF transmission line along at least a portion of its length. Moller does not disclose this limitation. Instead, Moller discloses one segment of channel 180 that extends below conductor 150 and another segment that extends below conductor 160. However, the two segments of the channel do not both traverse (i.e. cross and re-cross) either of the conductors 150, 160.

The traversal of the fluid channel segments with respect to the RF transmission line is an important feature of Applicants' invention. The phase delay of the RF transmission line can be selectively controlled by adding (or removing) the fluidic dielectric from a number of fluid channel segments, each of which have dimensions selected to provide a particular phase adjustment when filled with fluidic dielectric. Thus, a desired phase delay can be achieved by filling an appropriate number of fluid channel segments with fluidic dielectric.

In light of the foregoing, amended claims 12 and 23 are believed to be in condition for allowance. Claims 13, 15, 16 and 18-20 are believed allowable at least as a result of their dependence on an allowable base claim.

III. Claim Rejections Under 35 U.S.C. §103(a)

Claims 1, 3-5, 7-8 and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Moller in view of U.S. Patent No. 3,701,058 to Smith ("Smith"). Amended claims 1 and 11 recite, inter alia, a structure defining a fluid channel having a serpentine configuration. Again, the fluid channel comprises a plurality of fluid channel segments that traverse the RF transmission line and that are coupled to the RF transmission line along at least a portion of a length of said transmission line. As noted, Moller does not teach this limitation. Notably, Smith also fails to teach this limitation. Accordingly, amended claims 1 and 11 are believed to be in condition for allowance.

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Claims 3-5 and 7-8 are believed allowable at least by their dependence on an allowable base claim.

IV. Allowable Subject Matter

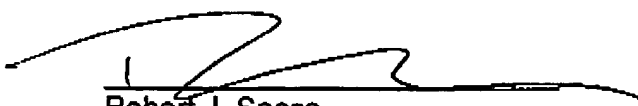
Claims 2, 9-10, 14 and 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2, 9, 14 and 21 have been amended to incorporate the limitations of their respective base claims. Claims 10 and 22 depend from claims 9 and 21, respectively. Accordingly, claims 2, 9-10, 14 and 21-22 are in condition for allowance. Please charge Deposit Account No. 50-2884 in the amount of \$800.00 for the four (4) newly-added independent claims. Please charge any deficiencies or credit any overpayments to Deposit Acct. No. 50-2884.

V. Conclusion

Applicants have made every effort to present claims which distinguish over the prior art, and it is believed that all claims are in condition for allowance. Nevertheless, Applicants invite the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicants respectfully requests reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

3-8-05
Date


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